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server regards the time indicated by the time information attached to the received data as an accepting time for the data in the receiver server. That is, the accepting time for data such as e-mail in the receiver server is attached in the sender server, rather than in the receiver server or a receiver concerned. The receiver server can then obtain the accurate time as the accepting time, since the sender server attaches the time information that has an authorized level of accuracy.

An e-mail distribution system in the present invention is characterized in that a sender system that sends e-mail data includes: time information maintaining means proved to be able to maintain time information having a certain accuracy by a third party or others; time stamp attaching means for attaching a time stamp including the time information having a certain accuracy to the e-mail data; and data transmission means for sending the e-mail data with the time stamp toward a receiver system.

Here, what is known as a radio wave clock is suitable for obtaining the time information having a certain accuracy. The radio wave clock receives radio waves including time information having a certain accuracy to obtain the time information from the radio waves.

Further, the time stamp may include information other than the time information, for example the name and address of the sender system. In addition, the time stamp can be made to appear at a predetermined position on a displayed or printed e-mail message.

Further, if the sender system or the sender's terminal is informed of the time information included in the time stamp after the sender system sends e-mail data, the sender can know the sending time for the e-mail data. In addition, if the receiver system informs the sender system that the receiver system has received the e-mail data with the time stamp, the sender system can recognize the reception of the e-mail by the receiver system.

BRIEF DESCRIPTIONS OF THE DRAWINGS

FIG. 1 shows a schematic configuration of an e-mail transmission and reception system in an exemplary embodiment;

FIG. 2 is a flow chart showing processes in which an authorizing office authorizes an authorization mail server;

FIG. 3 shows a configuration of an authorizing office server;

FIG. 4 shows a configuration of the authorization mail server;

FIG. 5 shows a configuration of a receiver mail server;

FIG. 6 is a flow chart showing processes for sending e-mail stamped with an electronic postmark;

FIG. 7 is a flow chart showing a process flow on the receiver side of the e-mail; and

FIG. 8 shows an example of the electronic postmark displayed on an e-mail display screen.

DETAILED DESCRIPTION

Now, a detailed description of the invention will be given below with reference to an embodiment shown in the appended drawings.

FIG. 1 is a schematic view for explaining a configuration of an e-mail transmission and reception system (a data transmission and reception system) in this embodiment.

The outline of the e-mail transmission and reception system in this embodiment is as follows. An authorization mail server (a sender server or a sender system) 20M, which is authorized by an authorizing office (a predetermined public organization, a third party, or an authorizing organization) 10

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to issue accurate time information, stamps (attaches) an electronic postmark (a time stamp) including the accurate time information on e-mail being sent from a sender's PC (a sender's terminal or a user's terminal) 30 and sends out the e-mail. The e-mail is transferred to a receiver mail server (a receiver server, a receiver system, or a data reception system) 50M over the Internet (a network) 40 and is finally delivered to a receiver's PC (a receiver's terminal) 60.

Prior to the implementation of this system configuration, the authorization mail server 20M should be authorized by the authorizing office 10 (<1> in FIG. 1). FIG. 2 is a schematic flow chart showing the authorization processes, in which an ISP (Internet Service Provider) that owns the mail server (unauthorized yet at this point) first applies to the authorizing office 10 for a license to issue the electronic postmarks (step S101).

Then, the authorizing office 10 makes a predetermined examination of the ISP. That is, it examines the ISP's mail server for the ability to issue the electronic postmarks including the accurate time information (step S102). If the ISP passes the examination, the authorizing organization 10 informs the ISP that the ISP is licensed to issue electronic postmarks and sends to the ISP an electronic postmark issue program for issuing electronic postmarks in the ISP's mail server (step S103).

In response, the ISP incorporates the received electronic postmark issue program into the mail server (step S104). Thus, the mail server functions as the authorization mail server 20M authorized by the authorizing office 10 thereafter, and the ISP that owns the mail server 20M becomes a licensed ISP that is licensed by the authorizing office 10.

The above-described procedure concerning the grant of a license may be what is called an off-line procedure involving exchange of documents. However, in this embodiment, it is intended to be an on-line procedure between the authorizing office 10 and the ISP (the authorization ISP) via a telephone network or the Internet 40.

As shown in FIG. 1, the authorizing office 10 has an authorizing office server (an organization server) 11 to carry out the above-described procedure concerning the granting of the license and to manage (monitor) the authorization mail server 20M authorized by the authorizing office 10. The authorizing office server 11 can connect to the authorization mail server 20M via a dedicated line or the Internet 40.

As shown in FIG. 3, which depicts a configuration for performing the above-described procedure on-line, the authorizing office server 11 comprises: a licensed ISP registration section 12 for receiving the registration application from the ISP and for registering (storing) information, such as its serial number and location, as management information about the authorization mail server 20M authorized as a result of the examination; and a program distribution section 13 for distributing on-line the electronic postmark issue program to the authorized mail server.

The authorizing office server 11 also comprises, as a configuration for managing the authorization mail server 20M after being authorized: a server operation monitoring section 14 for monitoring the operating status of the authorization mail server 20M registered in the licensed ISP registration section 12; a GMT obtaining section 15 for obtaining GMT (Greenwich Mean Time) as the accurate time information; and a transmission and reception section 16 for data communication with the authorization mail server 20M via the dedicated line (or the Internet, etc.).

The server operation monitoring section 14 appropriately monitors the authorization mail server 20M, as described below, to determine whether it maintains accurate time or not.